REMARKS

Claims 1-13 are pending in this application. Claims 1-4, 7, 9 and 10 has been amended to more clearly point out and distinctly claim that which applicant regards as the invention. It is submitted that no new matter has been added.

Claim Rejections – 35 U.S.C. § 102(e)

The Examiner has rejected claims 1-3, 5, 6 and 8-13 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,963,986 (Briggs et al.). Applicant respectfully traverses the rejection.

Briggs et al. is directed to a method of controlling the power consumption of a peripheral device. As described by Brigs et al. at col. 3, lines 5-30, the device 10 includes a processor 20 and functional blocks 12, 14, 16 and 18. The processor operates in response to a processor clock, the frequency of which can be adjusted. Each of the functional blocks operates in response to a corresponding clock which can be turned on and off.

Upon being connected to a host, the device 10 is enumerated. During enumeration, the host reviews USB descriptors, each of which describes a configuration state of the peripheral device. Each configuration state is described by Briggs et al. includes the speed of the processor 10 and which blocks 12, 14, 16 and 18 are enabled or disabled.

After enumeration is completed, the host determines whether to authorize the peripheral to consume full power or to consume some intermediate level of power consumption (col. 3, lines 54-67). A particular configuration of processor speed and block enablement or disablement is authorized that falls within the available power limits. The authorized configuration is determined by the host reviewing all the possible configuration states (i.e. USB descriptors) of the peripheral device and their corresponding power levels and the host commanding the peripheral to a particular configuration state using the Set Configuration command.

The Examiner cites Briggs et al. col. 3, line 54 to col. 4 line 14 as disclosing a power control section that controls power consumption corresponding to selected information of the power profile information that was received from the main device.

Amended claim 1 recites:

1. A peripheral device comprising:

a functional unit which carries out a function based on commands from a main device;

a power control section which controls power consumption of said functional unit;

a power profile information memory which memorizes stores a power profile information list that includes single or plural power profile information;

and an interface section which sends and receives said power profile information and commands relevant to the functional unit to and from said main device; wherein

said interface section sends said power profile information list to said main device in response to a demand from said main device;

and said power control section controls power consumption of said functional unit according to selected information of said power profile information list received from said main device.

The Examiner states that "a power profile information memory which memorizes a power profile information list that includes single or plural power profile information" in the invention corresponds to "enumeration information used to determine a configuration state of the peripheral device and the configuration must be maintained (col.4, lines 1-14)" in Briggs et al. However, the enumeration information in Briggs et al. is the set of USB descriptors, each of which characterizes a possible configuration of the peripheral device. In Briggs et al. the host determines the configuration state for the peripheral device based on the enumeration information and stores the information. In contrast, according to an embodiment of the invention, the peripheral device stores plural preliminarily-supposed power profiles (corresponding to "configuration state" by Briggs et al.) (for example configuration state as shown in Fig.2) as a power profile information list in the peripheral device. Accordingly, the enumeration information of Briggs et al. does not correspond to the power profile information list of the invention.

In addition, the Examiner states that "said power control section controls power consumption of said functional unit by corresponding to the selected information of said power profile information that was received from said main device (device is given the go ahead to increase power (col.3, line 54 through col.4, line 14)" in Briggs et al. However, Briggs et al., does not disclose a power control section that controls the power of the of the functional unit because the power consumption is controlled directly by the host setting the configuration state of each function block of the peripheral device. In contrast, according to an embodiment of the invention, the main device (host) selects a single power profile from plural power profiles stored in the power profile information list of the peripheral device, and sends the selected information to the peripheral device. The peripheral device receives the selected information and controls power consumption of the functional unit according to the selected information by the power control section. That is, the peripheral device extracts the selected power profile from the power profile information list of the peripheral device and controls the configuration state. Hence, according to an embodiment of the invention, it is the peripheral device that controls the configuration state and not the host.

An advantage of Applicant's invention caused by the above feature is that the main device need not know the composition of the function unit in the peripheral device and the specification of each function unit, because the peripheral device determines the configuration state for the peripheral device to achieve the power required by the main device. In Briggs et al., if the peripheral device has the function of which power consumption is not known by the main device (for example a new function released after the main device goes out the door), an appropriate control cannot be done. To the contrary, in Applicant's invention, even in such a case, an appropriate power profile can be selected for the appropriate control, because the peripheral device has plural configuration state for the peripheral device as power profile.

In respect to claim 2, the Examiner states that "corresponding to the selected information of said power profile information list that was received from said main device, stores the corresponding power profile information from said power profile information memory, in said power profile register" in the invention corresponds to "in order to carry out the SET_CONFIGURATION command and maintain configuration" in Briggs et al. Applicant

respectfully traverses the rejection.

A role of the power profile register in an embodiment of Applicant's invention is to store the power profile information selected by the main device from said power profile information memory corresponding to the selected information of said power profile information list that was received from said main device. The power control section deciphers the power profile information based on stored power profile information, and controls power consumption of the functional unit based on deciphered power profile information.

To the contrary, in Briggs et al., the host executes the SET_CONFIGURATION command to USB which is one of the function units in the peripheral device. That is, in Briggs et al., the host sets the configuration state to each function unit based on the configuration state information stored in the host.

An advantage of this feature of the invention is that the main device need not know the composition of the function unit in the peripheral device and the specification of each function unit because the peripheral device determines the configuration state for the peripheral device to achieve the power required by the main device, therefore, in the invention, if the peripheral device has the function of which power consumption is not known by the main device, an appropriate power profile can be selected because the peripheral device has plural configuration state for the peripheral device as power profile.

Claim 3 is amended to clarify the definition of the requested specification which is the distinguishing feature of the invention.

In respect to claim 3, the Examiner states that "a power profile judgment section which determines from the specifications power profile information from the power profile information list stored in the power profile information memory" in the invention corresponds to "after the enumeration the device is given the go ahead to increase power based on the configuration state that was send from the main device as a SET_CONFIGURATION command (col. 3, line 54 through col.4, line 14 and col.2, lines 62-

65)" in Briggs et al. .

In an embodiment of Applicant's invention, the power profile judgment of the peripheral device determines appropriate power profile information from the power profile information list stored in the power profile information memory based on the requested specifications (including the range of power profiles which are designated or allowed by the main device. In Briggs et al., in contrast, the host sends the configuration state to each function unit such as USB and controls the function unit.

Therefore, in Briggs et al., if the host does not know the specifications of the function unit included in the peripheral device, an appropriate control cannot be done. In contrast, in an embodiment of Applicant's invention, even if the peripheral device includes a function for which power consumption is not known by the main device, an appropriate power profile can be selected. This is because the peripheral device has plural configuration state for the peripheral device as power profile and the main device sends the requested specifications to the peripheral device and the power profile judgment of the peripheral device determines power profile which meets the requested specifications.

In respect to amended claims 5 and 8, Briggs et al. merely discloses the capability to enable/disabled a block but does not disclose power profile information that includes (1) a maximum output value of a power amplifier or (2) a transmission rate of a wireless communication as recited in amended claims 5 and 8.

In respect to claim 6, the Examiner states that "demands a power profile information list from said peripheral device, wherein the power profile information list includes single or plural power profile information that is information for peripheral device to control power" in the invention corresponds to "using set configuration command (col.3, line 64-67)" and "various possible configurations (col.3, lines 54-67}" in Briggs et al. However, in an embodiment of the invention, the power profile information list includes plural preliminarily-supposed power profile (configuration state) (for example configuration state as shown in Fig.2} and is stored as power profile information list in the peripheral device. The main

device demands the power profile information list and selects single power profile information from the received power profile information list. To the contrary, in Briggs et al., the host searches for various possible configurations (configurations of the function unit (for example USB) in the peripheral device) using the Set Configuration command.

The Examiner also states that "selects single power profile information which is appropriate for the main device from said power profile information list sent from said peripheral device, and sends the selected information of selected power profile information to said peripheral device" in the invention corresponds to "the peripheral adjusts the power based on the Set configuration command (col.4, line 1-14 and abstract) " in Briggs et al. However, in the invention, the main device selects single power profile information which is appropriate for the main device from said power profile information list sent from said peripheral device, and sends the selected information of selected power profile information to said peripheral device. To the contrary, in Briggs et al., the host adjusts the power based on the Set Configuration command.

As described above, in Briggs et al., the power in the peripheral device is adjusted based on the Set Configuration command from the host, and therefore if the host does not know the specifications of the function unit included in the peripheral device, an appropriate control cannot be done.

To the contrary, according to the invention, the peripheral device has plural configuration state for the peripheral device as power profile, the main device selects single power profile which is appropriate for the requested specifications of the main device from the power profile sent from the peripheral device, the main device sends information indicating which power profile is selected to the peripheral device, and then the peripheral device controls power based on the selected power profile. Even if the peripheral device has the function of which power consumption is not known by the main device, an appropriate power

In respect to claims 9-13, the Examiner appears to be repeating the rejection over Jinnouchi from the prior Office Action. As argued in the prior Office Action, Jinnouchi does not disclose a main device which sends a demand to a peripheral device nor does the peripheral device send a power profile list to the main device in response to receiving a demand.

Claims 9-13 are also allowable over Briggs et al. for the same reasons that claims 1-4, 6 and 8 are allowable.

Claim Rejections – 35 U.S.C. § 103(a)

The Examiner has rejected claims 4 and 7 under 35 U.S.C. §103(a) as being unpatentable over Briggs et al. in view of U.S. Patent No. 5,812,860 (Horden).

In respect to claim 4, the Examiner states that Briggs et al. teaches wherein said power profile judgment section changes said power profile information to be stored in power profile register based sent from said main device (changing frequency, col.4, line 15-24). However, in Briggs et al., once the USB device is given the go-ahead to consume more current, the device writes a new value directly to a clock control register to change the clock frequency. Briggs et al. does not disclose the concept changing a value of the power consumption included in said power profile information stored in a power profile register as recited in allowable claim 3. Consequently, even by adding adjustment of the voltage and frequency as recited in Horden to Briggs et al., the combination does not teach all the limitations of amended claim 4 dependent on claim 3.

In respect to claim 7, the Examiner states that it was rejected for similar reasons as claim 4. However, in Briggs et al., once the USB device is given the go-ahead to consume more current, the device writes a new value directly to a clock control register to change the clock frequency. Briggs et al. does not disclose selecting a single power profile list which is appropriate for the main device from said peripheral device and sends the selected information power profile information to the peripheral device as recited by allowable claim 6. Consequently, even by adding adjustment of the voltage and frequency as recited in Horden to Briggs et al., the combination does not teach all the limitations of amended claim 7 dependent on claim 6.

Conclusion

Insofar as the Examiner's objections and rejections have been fully addressed, the instant application, including claims 1-13 is in condition for allowance and Notice of Allowability of claims 1-13 is therefore earnestly solicited.

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